DRISI

Caltrans Division of Research, Innovation and System Information

Research Results

Collecting Work Zone Injury Data

Information on the cause of incidents facilitates planning safer work zone operations

Transportation Safety and Mobility

JANUARY 2016

Project Title:
Work Zone Injury Data Collection and Analysis

Task Number: 2257

Start Date: August 4, 2011

Completion Date: June 30, 2015

Product Category: Processed data or database; new or improved decision support tool, simulation, model, or algorithm (software)

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WHAT WAS THE NEED?

Work zone–related injuries and fatalities are a major safety concern in California and nationwide. According to the Federal Highway Administration, one work zone–related injury occurs every 14 minutes, and one fatality occurs every 15 hours, resulting in an average of 96 injuries and 1.6 fatalities per day. Work zone accidents and injuries have a high cost, including medical fees, loss of life, property damage, lost earnings, travel delay, vocational rehabilitation, administrative costs, legal fees, pain, and diminished quality of life. Based on five years of data for California, the average yearly cost of all work zone incidents is approximately $382 million.

Various ideas to prevent work zone incidents have been considered, such as keeping workers in vehicles, changing driver behavior with publicity campaigns, using more full road closures, or working at night when traffic is reduced. But data to justify a particular mitigation measure is unavailable. Although databases and data sources exist, such as the Statewide Integrated Traffic Records Systems (SWITRS) based on California Highway Patrol crash reports and the Caltrans Traffic Accident Surveillance and Analysis System (TASAS), they report only locations and outcomes, not causes. To address the causes, more information is needed about the incidents, the severity of the injuries, contributing factors, and resulting property damage. In addition, methods to estimate the associated costs and remedies can be useful.

WHAT WAS OUR GOAL?

The goal was to create a comprehensive database of work zone incidents to better analyze the nature and causes and facilitate safer work zone planning.

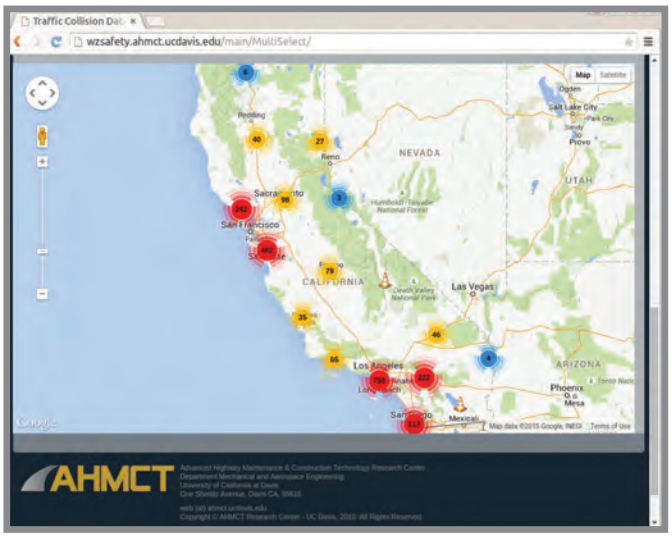
The Work Zone Injury Database contains detailed information from traffic collision reports.

WHAT DID WE DO?

Caltrans, in partnership with the University of California, Davis Advanced Highway Maintenance and Construction Technology (AHMCT) Research Center, extracted and classified traffic collision report data on incidents occurring near work zones from 12 Caltrans districts between 2006 and 2010. The researchers codified the report information in terms of contributing factors and outcomes, designed to allow analysis of the data for planning and managing work zone operations to improve worker and motorist safety.

WHAT WAS THE OUTCOME?

The comprehensive database based on five years of data includes the information needed to develop mitigation measures. It provides answers on what kind of incidents occur in work zones and the cause. Can some injuries and fatalities be avoided by using a barrier system, and if so, how and where?



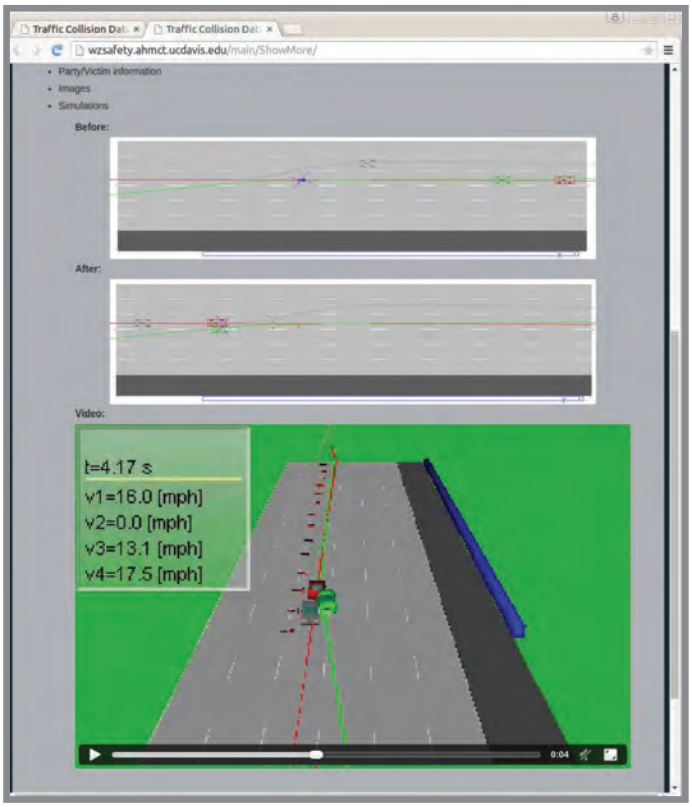
Mapping searched reports to accident locations

WHAT IS THE BENEFIT?

This data-driven, decision-support tool facilitates safer work zone planning and management. Caltrans can also evaluate the cost-benefit of different work zone protection systems. Safer work zones benefit Caltrans operators and the traveling public.

LEARN MORE

To view the complete report:
www.dot.ca.gov/research/researchreports/reports/2015/CA16-2257_FinalReport.pdf



Output of a PC-CRASH simulation